Basic Stormwater Management Course

Participant Guide

Training provided by the Virginia Department of Environmental Quality
Office of Training Services

Fall 2013

Agenda

Day 1

8:30 – 9:15	Module 1 – Introduction and Course Overview
9:15 – 9:45	Module 2 – Why Stormwater Management Matters
9:45 – 10:00	Break
10:00 – 10:45	Module 2 continued
10:45 – 12:00	Module 3 – Virginia Stormwater Management Act
12:00 – 1:00	Lunch
1:00 – 1:30	Module 3 continued
1:30 – 3:00	Course Exercise

Day 2

8:30 – 9:30	Module 4 – Virginia Stormwater Management Program Regulations
9:30 – 9:45	Break
9:45 – 10:45	Module 4 continued
10:45 – 11:00	Break
11:00 – 11:45	Module 5 – Overview of a VSMP
11:45 – 1:00	Lunch
1:00 – 2:00	Module 6 – Environmental Site Design and BMPs
2:00 – 2:15	Break
2:15 – 3:00	Conversation with Regional DEQ Office
3:00 – 4:00	Wrap Up and Course Exercise

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Course Goal

Provide participants with the knowledge and tools needed to successfully meet the regulatory requirements of the VSM Act and Regulations to ensure the general health, safety and welfare of the citizens of Virginia, as well as provide protection for state waters.

Participant expectations

- Use the training materials as you like. All the materials that you received were prepared for your use, and you may use the handouts for note taking during the training.
- Be honest with yourself about your stenghths and areas that you need to develop. You are responsible for your own learning. Ask for what you need from your trainers and other group members.

Acronyms

BMP: Best Management Practice

CA: Composted amended soils

CBPA: Chesapeake Bay Preservation Area

CDA: Contributing drainage area

CFS: Cubic Feet per Second

CN: Curve number

CPv: Channel Protection Volume

CSN: Chesapeake Stormwater Network

CSO: Combined Sewer Overflow

CWA: Clean Water Act

CWP: Center for Watershed Protection

DEQ: Virginia Department of Environmental Quality

ED: Extended detention

EMC: Event Mean Concentration

EPA: United States Environmental Protection Agency

ESC: Erosion and Sediment Control

ESD: Environmental Site Design

g/cc: Grams (weight) per Milliliter (volume)

GP or Construction GP: Construction General Permit

HSG: Hydrologic Soil Groups

HUC: Hydrologic Unit Code

I-D-F curves: Intensity-Duration-Frequency curves

LDA: Land Disturbing Activity

LID: Low Impact Development

MS4: Municipal Separate Stormwater Sewer System

NHRCS TR-55: Natural Resources Conservation Service Technical Release 55

NOAA: National Oceanic and Atmospheric Administration

NPDES: National Pollution Discharge Elimination System

NPS: Non-Point Source

P: Phosphorus

P2 Plan: Pollution Prevention Plan

RR: Runoff Reduction

RRM: Runoff Reduction Method

SAV: Submerged Aquatic Vegetation

SWM: Stormwater Management

SWPPP: Stormwater Pollution Prevention Plan

Tc or **TOC:** Time of concentration

TMDL: Total Maximum Daily Load (a federal and state regulatory term which describes the maximum pollutant amount a body of water can receive while still meeting water quality standards)

TV: Treatment Volume

VESCP: Virginia Erosion and Sediment Control Program

VRRM: Virginia Runoff Reduction Method

VSMA: Virginia Stormwater Management Act

VSMP: Virginia Stormwater Management Program

VPDES: Virginia Pollution Discharge Elimination System

Module 1: Course Overview

Module 1 Objectives

After completing this module, you will be able to:

- Identify the training and certification requirements for stormwater management and erosion and sediment control

Module 1 Content

1a. Introduction

1b. Training and Certification

1c. Technical Assistance / 2013 Stormwater Management Handbook

1d. Roles and Responsibilities in a VSMP Authority

1a. Introduction

The most recent changes to the Virginia Stormwater Management Act (VSMA) occurred in 2012 through the passage of House Bill 1065, also called the Integration Bill. Among the changes is the requirement that all counties, cities, and towns with regulated Municipal Separate Storm Sewer System (MS4) programs adopt and administer a local Virginia Stormwater Management Program (VSMP) – effectively creating a statewide stormwater management program that operates at the local level.

A cornerstone of the VSMP is the requirement for coverage under the General Permit for Discharges of Stormwater from Construction Activities (Construction GP) for regulated land-disturbing activities. Starting July 1, 2014, local governments will hold the primary role of reviewing and approving applications for coverage under the Construction GP. Final permit coverage will still be issued by the Department of Environmental Quality (DEQ). Local governments will also hold the primary role of inspecting best management practices (BMPs) and enforcing compliance with the permit and local stormwater ordinances.

The movement of the VSMP from the state level to the local level allows localities to integrate their stormwater management requirements with the requirements of erosion

and sediment control, flood insurance (if applicable), flood plain management, and Chesapeake Bay Preservation Act (if applicable) into a unified stormwater program. This is intended to make the submission and approval of plans, issuance of permits, payment of fees, and coordination of inspection and enforcement activities more convenient and efficient for both the locality and the applicant.

The VSMA and Regulations also bring about a new shift to the runoff reduction paradigm, where designers will focus on reducing the post-development stormwater runoff volume from a site, as well as meeting more stringent nutrient load reduction requirements to improve water quality.

1b. Training and Certification (9VAC25-850)

The VSMA requires personnel working in a VSMP to obtain and maintain a certificate of competence in the area of stormwater management. DEQ is required by the VSMA to create an expanded training and certification program.

The Erosion and Sediment Control and Stormwater Management Certification Regulations (9VAC25-850) require individuals performing certain duties in a Virginia Erosion and Sediment Control Program (VESCP) and/or a VSMP to be certified.

The following graphic illustrates the prerequisite courses needed for each certification through the traditional training and certification curriculum.

Erosion and Sediment Control (ESC) Exam Eligibility Training
Table 1-1

Program Administrator	=	ESC 2-day Basic				
Inspector	=	ESC 2-day Basic	+	ESC 1-day Inspector		
Plan Reviewer	=	ESC 2-day Basic	+	ESC 2-day Plan Reviewer		
Combined Administrator	=	ESC 2-day Basic	+	ESC 1-day Inspector	+	ESC 2-day Plan Reviewer

Stormwater Water Management (SWM) Exam Eligibility Training
Table 1 - 2

Program Administrator	=	SWM 2-day Basic				
Inspector	=	SWM 2-day Basic	+	SWM 1-day Inspector		
Plan Reviewer	=	SWM 2-day Basic	+	SWM 2-day Plan Reviewer		
Combined Administrator	=	SWM 2-day Basic	+	SWM 1-day Inspector	+	SWM 2-day Plan Reviewer

On-The-Job Experience

The other path for obtaining a certificate of competence is through on-the-job work experience in one of the classifications list in Table 1-1 and 1-2. If an individual has accumulated a minimum of 800 hours of on-the-job experience (verified through the application) they may be eligible to take the exam without attending training courses.

Dual Certificate

Individuals who perform both VESCP and VSMP duties may obtain a Dual Certificate of Competence by surrendering both valid certificates to the Department and paying the required administrative fee. For instance, a person who holds a valid ESC Inspector Certificate and obtains a SWM Inspector Certificate may surrender both certificates and obtain a Dual Inspector Certificate.

The dual certificate will **expire three years from the latest date of either certificate** being surrendered.

Dual Certificates of Competence
Table 1-3

ESC Program Administrator	+	SWM Program Administrator	=	**Dual Program Administrator**
ESC Inspector	+	SWM Inspector	=	**Dual Inspector**
ESC Plan Reviewer	+	SWM Plan Reviewer	=	**Dual Plan Reviewer**
ESC Combined Administrator	+	SWM Combined Administrator	=	**Dual Combined Administrator**

Certain Licensed Professionals are automatically certified as ESC Plan Reviewers. However, they must be certified to conduct ESC inspections or perform as an ESC Program Administrator. In the area of SWM, those professionals are **not** automatically certified and must obtain a certificate of competence if they are performing the duties of a VSMP Program Administrator, Inspector or Plan Reviewer (see section 9VAC25-850-50 of the Regulations for further details on who meets these requirements). Re-certification for those individuals is different and will be discussed below.

Exam

The exams are open book. You will be notified about what materials you are allowed to bring as reference material to take the exam. Typically the DEQ Handbooks along with course participant guides are used. Materials must be in a bound (3-ring) binder. No loose papers or study materials are allowed.

You will be notified of your exam results and if successful, you will receive your certificate via mail. If you fail the exam, you will be eligible to take it again up to one year without submitting an additional request or application. Additional exams are **not free**. You must attain a minimum score of **70%** in order to pass the exam. For exams that contain multiple parts, you must attain a minimum score of **70% on each part**.

Certificates and re-certifying

All certificates of competence are valid for **three years**. In order to maintain your certificate of competence, you must re-certify every three years. There several ways in which to re-certify:

1. Re-take the exam before the expiration date on your current certificate;
2. Attend the DEQ training courses required for your individual certificate; or
3. Complete the required amount of contact or CEU hours

Once you have completed either items 2 or 3 above, you may apply for re-certification and pay the appropriate fee.

Important!

You must re-certify **before** the expiration of your certificate in order to keep it valid. **If your certificate expires, you cannot re-certify.** You must take another certification exam. Individual work experience may qualify you to take the exam however, you must re-apply to take the exam or you may be required to attend the training again and certify through that path depending on your individual situation. Licensed Professionals may re-certify by providing evidence that they still hold a valid license and pay the appropriate fee. All re-certification of classifications must pay the appropriate fee. You may re-certify during the

last 12 months of your valid certificate without losing time on the valid certificate. The three years will be added to the expiration of that valid certificate.

Provisionally Certified

Once you are enrolled in the DEQ training program, you are "provisionally" certified. You have one year to complete the certification process (attend the required training and pass the examination). See 9VAC25-850-50 for details and applicability.

RLD

The other certificate issued by the Department is the Responsible Land Disturber (RLD). This certificate is intended for individuals who are responsible for carrying out the land-disturbing activity (LDA) in accordance with the approved ESC plan. The RLD may be the owner, applicant, permittee, designer, superintendent, project manager, contractor, or any other project or development team member. The RLD must be designated on the ESC plan or permit as a prerequisite for engaging in land disturbance.

For further questions regarding training and certification, please visit the FAQ link on the DEQ Training & Certification page: www.deq.virginia.gov/ConnectWithDEQ/TrainingCertification.aspx.

1c. Technical Assistance / 2013 Stormwater Management Handbook

The VSMA also requires DEQ to provide technical assistance to VSMPs. This is done in part by an online Stormwater Management Handbook, which supplements the 1999 Blue Book and the Stormwater BMP Clearinghouse, a reference website for the specifications, installation and maintenance of best management practices (BMPs).

Virginia Stormwater Management Handbook

Table 1-4

Chapter 1 Appendices	Introduction 1-A: Glossary of terms and acronyms
Chapter 2 Appendices (Module 2&3)	Introduction to VSMA and Regulations 2-A: Full text of Act 2-B: Full text of Regulations
Chapter 3 Appendices (Module 4)	Qualifying local VSMPs 3-A: Potential elements of a Comprehensive local stormwater management program 3-B: Developing an effective local VSMP 3-C: Information tools for local VSMP 3-D: Local code and ordinance review and evaluation 3-E: Case study – Setting up a local stormwater utility 3-F: Example site plan review checklist 3-G: Stormwater management and BMP construction inspections
Chapter 4 (Module 1)	Why stormwater management matters
Chapter 5 Appendices (Module 1)	Managing stormwater 5-A: The impervious cover model: An emerging framework for urban stormwater management 5-B: Watershed based stormwater planning 5-C: Special stormwater management considerations for redevelopment 5-D: Stormwater pollution benchmarking
Chapter 6 Appendices (Module 5)	Site planning and design considerations (Environmental site design) 6-A: Site plan preparation and submission as part of the land development process 6-B: Karst area design guidelines 6-C: Coastal plain design guidelines 6-D: Sustainable Sites Initiative
Chapter 7 Appendices (Module 5)	BMP upgrades and retrofits 7-A: Retrofit case study: Charlottesville, VA 7-B: CWP retrofit reconnaissance investigation checklist 7-C: Derivation of the retrofit pollution removal adjustor curves
Chapter 8 Appendices (Module 5)	BMP overview and selection criteria 8-A: Example BMP design checklist

Chapter 9 Appendices	BMP inspection and maintenance 9-A: Results of a field survey of BMPs 9-B: Example BMP maintenance agreement 9-C: Example BMP inspection & maintenance checklist 9-D: From the drafting board to the field – Designing BMPs to facilitate and simplify maintenance 9-E: Example of method to estimate sediment accumulation
Chapter 10 Appendices	Uniform stormwater BMP sizing criteria 10-A: Optional recharge volume approach 10-B: Better protection from stream channel erosion
Chapter 11 Appendices	Hydrologic methods and computations 11-A: Hydrologic soil groups of Virginia soils 11-B: 24-hour rainfall depth data for Virginia, derived from NOAA Atlas 14 11-C: Runoff depths for selected NRCS runoff curve numbers 11-D: Stormwater computer models
Chapter 12 (Module 5)	Virginia runoff reduction method
Chapter 13	Example site plans

1d. Roles and Responsibilities in a VSMP Authority

A VSMP authority is comprised of a program administrator, plan reviewer, project inspector, and in some cases, a combined administrator.

Program administrator

- Ensures plan review, approval, inspections, and enforcement are being properly conducted
- Completes annual report
- Manages long-term maintenance agreements
- Coordinates enforcement proceedings
- Keeps records
- Collects fees
- Updates local ordinances as needed

Plan reviewer

- Responsible for review of stormwater management plans to ensure they adhere to the Regulations and local ordinance(s)

Project inspector

- Reviews pollution prevention plan
- Conducts regular inspections of active construction sites to ensure proper construction and function of BMPs and other stormwater structures
- Ensures SWPPP is updated and implemented as required
- Documents inspections
- Initiates enforcement action when needed
- Ensures compliance to correct deficiencies or violations

Combined administrator

- Responsible for performing the combined duties of a program administrator, plan reviewer, and project inspector